Intelligent Repeater User Manual

For

GSM / EGSM/DCS / CDMA / PCS / WCDMA / IDEN / LTE4G

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1. Product Introduction

Pico repeater is applied specifically in small area indoor system. The base station signal is coupled and amplified by Pico repeater into in building system. The amplified signal is transmitted by indoor antenna. Meanwhile the indoor antenna will receive the cell phone signal, and send the signal to the base station as uplink. This method can eliminate the signal dead spot, reject the interference, and provide the stable signal communication for cell phone users. This Pico repeater mainly solves the problem spot problem in building.

Pico Repeater is a bi-directional amplifier that allows for the reception of signals, amplifies the signal and re-transmits into areas where there is no or very low signal level coverage enabling a mobile user to establish a call connection.

1) Application

RESIDENTIAL HOUSE	VILLAS
Basements	Parking Lots
Cars	High-speed trains
Border	Village
Elevators	Vessels
High-buildings	Tunnels
Countryside	Mines
Clubs	Underground Facilities

2) Characteristics

a) Adjustable Automatically

The intelligent repeater with ALC function, microprocessor controlled gain attenuator, gain dynamic auto-adjust range reach more than 60dB, all these functions make sure the high reliability and high stability for our devices. (Universal Mode repeater Only ALC function)

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b) Oscillation Detective Indicate Function

After installation, our repeater have the function of oscillation automatically detection between the donor antenna and service antenna. The repeater will show indicated LED and lower down the gain automatically if the isolation is not enough until there is proper isolation. This function is make sure the security and no interference to the BTS network. (Universal Mode repeater No such function)

c) Uplink/Downlink Auto Gain Synchronization

After the system is powered on, the input power is detected automatically and the output power is adjusted accordingly. After the downlink gain is calculated by the system, the uplink gain will be adjustment equivalently. This method can balance the system amplification. The both path gain is adjusted relevantly. So the repeater will not bring any interference and noise into the system link. One base station can hook up more than one repeater. (Universal Mode repeater No such function)

d) Automatic Installation Indication—Easy Operation

Perfect indication for working statue will show the repeater correctly, it made installation and operation more convenient and easy.

2. Technical Specifications

Model Number		
Frequency	GSM EGSM DCS CDMA PCS WCDMA IDEN 4GLTE	
Gain		≧65±3dB
Automatic Level Control		≧20dB
Noise Figure		≦5dB
Gain Flatness		≦8dB (p-p),
Automatic Gain Control		30dB in step of 1dB （Auto）
Output Power(Max)		UL≧20±2dBm DL≧23±2dBm
Input Power Range		≦-25 dBm
IM3		≦-45dBc
Spurious Emission	9KHz~150KHz	≦-36dBm @ 1KHz
	150KHz~30MHz	≦-36dBm @ 10KHz

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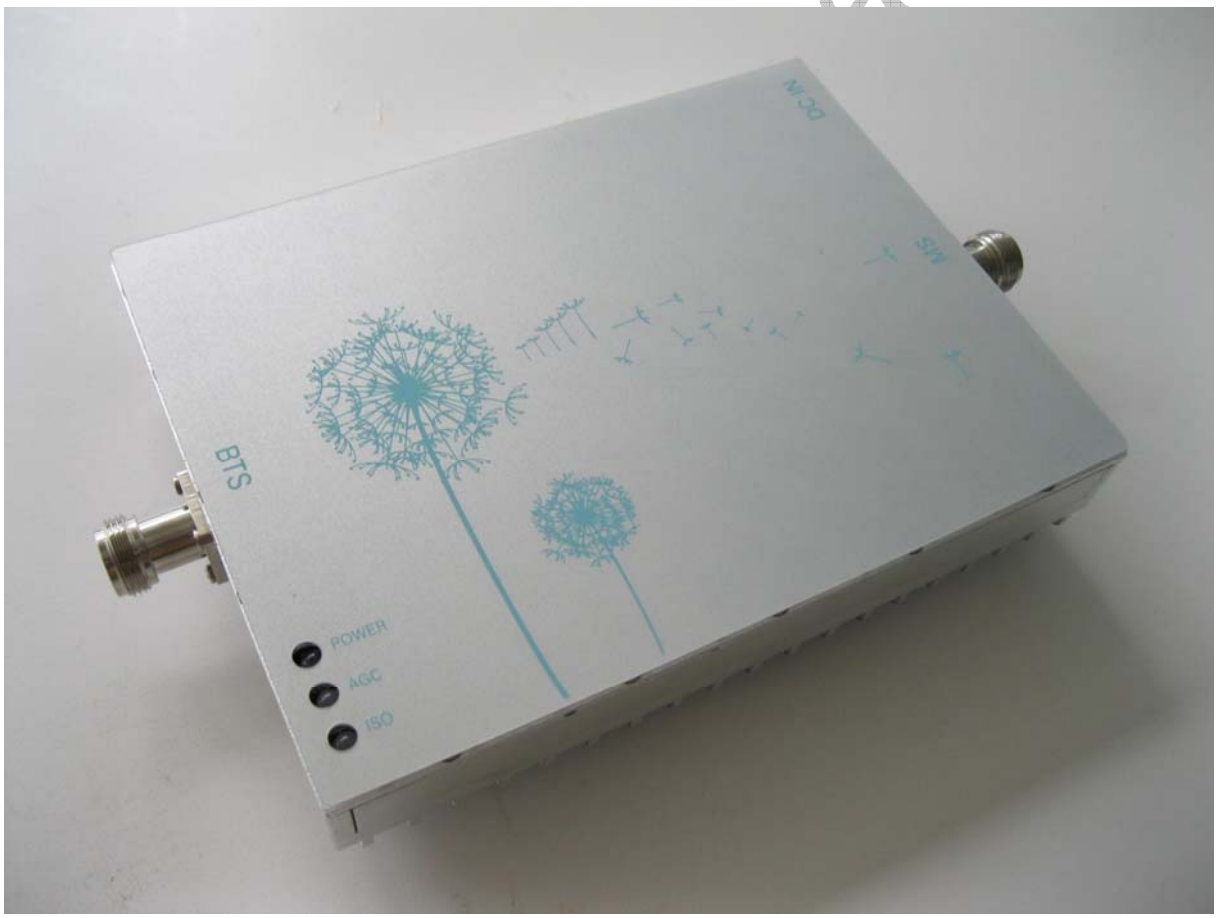
	30MHz~1GHz（out of band)	≦ -36dBm @ 100KHz
	1GHz~6.7GHz	≦ -36dBm @ 1MHz
Group Delay		UL≦1μs
Operating voltage		AC 220V

1) Product Picture



2) Interface Introduction

BTS -------BTS Transmitting Port (Connected with Outdoor Donor Antenna)

MS-------- Mobile User Receiving Port （Connected with Indoor Service Antenna）

System1----- CDMA800 System Or GSM900 System （Low frequency of dual-mode system）

System2----- DCS System Or WCDMA System OR PCS System OR CDMA2000 System (High frequency of dual-mode system)

Indicator	Status	Instruction
ISO Alarm Fault Indicator （Universal Mode repeater No such function）	Low Speed Green Blinking	Device being detected isolation
	Red on	Antenna isolation is 15dB lower than the isolation for equipment installation, adjusting for donor antenna and service antenna is needed.
	High Speed Red Blinking	Antenna isolation is 8-15dB lower than the isolation for equipment installation, repeater will adjust the gain automatically without necessary of position adjusting for antennas.
	Low Speed Red Blinking	Antenna isolation is 1-8dB lower than the isolation for equipment installation, repeater will adjust the gain automatically without necessary of position adjusting for antennas.
	Green	Antenna isolation is good, repeater working normally
ALC Alarm Indicator (Downlink Auto-control Indicator)	Green	Low output power
	Orange	Full output power
	Red	ALC start control is more than 10dB, downlink signal input is very strong.
Power Indicator	Green	Normal

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	Off	Power supply faulty

3) Spare List

Item	Model	Qty	Unit	Remark
repeater		1	pcs	Standard
Power Adaptor and supply	AC220V/DC9V/DC12V	1	pcs	Standard
Panel Directional Antenna		1	pcs	Optional
Yagi Antenna		1	pcs	Optional
Screws	setscrews	4	set	Standard

4) Installation Instructions

1) It supports the wall mounting installation. (or flam installation) see below figures：

(Figure1): Setscrews together with repeater package.

(Figure 1)

(Figure 2)

(figure2): Installed in the walls of the back frame

(figure3): Equipment on the back shelf。

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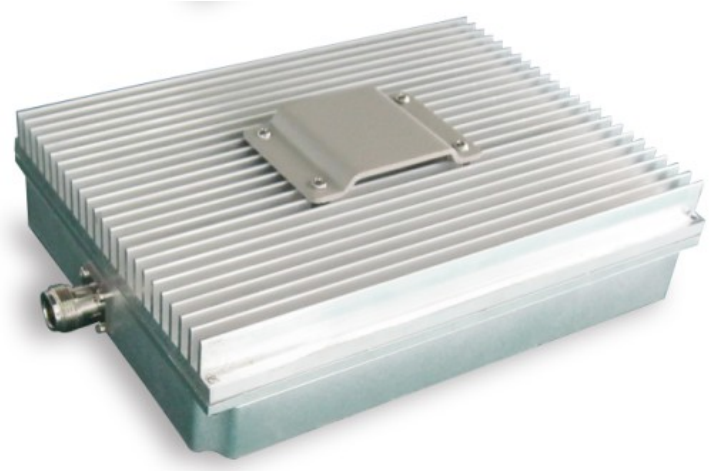

2) After fixing the repeater and indoor service antenna, plug the power into DC INPUT port with AC220V voltage. Power on the repeater, install the outdoor donor antenna, adjust the position and direction of antenna, check the LED indicators of repeater, make sure the ISO Alarm faulty indicator is Green, and try to make power indicator shifting between Green and Orange. At this statue the repeater will working under the best condition.

3. Q&A and Attentions

1) Questions:

Q 001: Power Indicator off

Reason:

（a） Power is not connected correctly

Solution:

（a） Plug in the power supply, make sure the electric is available

Q 002: ISO Alarm faulty indictor is blinking or red after adjust the antenna

Reason:

（a） Cable connector is lose or the cable standing wave is not good or cable connector didn’t connect proper,

（b） Donor antenna not in good order

（c） Direction of Donor antenna is not proper

Solution:

（a） Check the cable connector carefully; make sure the connector is fixed well.

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（b） Check donor antenna, change it if broken.

（c） Adjust the direction of donor antenna.

3) Q 003: Indicator is normal, but signal strength didn't enhanced

Reason:

（a） Service antenna not in good order.

（b） Connection of service antenna and repeater MS port is not connected well.

Solution:

（a） Check service antenna, change it if broken.

（b） Check connection between service antenna and repeater; make sure the connection is proper and well.

2) Attentions

1) It's better to make donor and service antennas isolated by wall. Within 10 meters distance at straight sight is forbidden. Otherwise the repeater can not work in order
2) The after end of Yagi antenna should be pointed towards outside, pointed to the signal source direction
3) Make sure the connections between repeater and antenna through is fixed tighten and well. Otherwise the coverage might not good.
4) Our standard power adaptor is AC**100V~240V**, Please pay attention to the voltage range.
5) This series repeaters are for indoor use only, temperature range should be: **-5~45**℃, please avoid of humidity and rain.

6)Test The Intelligent Mode repeater, please wait for the ISO Alarm After the green light flashes slowly before adding the test signal test to avoid errors

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